

EXHIBIT 8

**IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF TEXAS
HOUSTON DIVISION**

IMPULSE DOWNHOLE SOLUTIONS	§	
LTD., AND IMPULSE DOWNHOLE	§	
TOOLS USA LTD.,	§	
	§	
Plaintiffs,	§	Civil Action No. 4:23-cv-02954
	§	
v.	§	
	§	
DOWNHOLE WELL SOLUTIONS, LLC,	§	JURY TRIAL DEMANDED
	§	
Defendant.	§	

DECLARATION OF HARRI KYTOMAA

1. My name is Harri Kytömaa. I am over the age of 21 and am fully competent to make this Declaration. The matters set forth in this Declaration are based on my personal knowledge and are true and correct and if called as a witness, I could competently testify as to all facts set forth herein.

2. I provide this declaration in support of Impulse Downhole Solutions LTD., and Impulse Downhole Tools USA LTD.’s (“Impulse’s”) Opposition to Downhole Well Solutions, LLC’s (“Defendant’s”) Motion for Summary Judgment (Dkt. No. 30), and also in support of Impulse’s Motion to Compel an Inspection.

I. BACKGROUND

3. I have been retained by Sheppard, Mullin, Richter & Hampton LLP, counsel for Impulse to, among other things, analyze and opine on Defendant’s technology and related documents to determine whether and if so, to what extent Defendant has infringed Impulse’s patents.

4. I am a Corporate Vice President and Principal Engineer for Exponent Engineering & Scientific Consulting. I specialize in mechanical engineering and the analysis of thermal and flow processes. I have decades of experience in the area of dynamics and thermal hydraulics of piping systems, valves and pipelines. I developed flow modeling tools for such systems and their components and applied these to drilling and downhole applications. I pioneered the modeling of the dynamics and the acoustics of drilling fluid flows in piping systems for acoustic telemetry and Measurement-While-Drilling (MWD), which was one of the enabling technologies for directional drilling. I also developed ultrasonic techniques for both medical and engineering applications, including instrumentation for flow measurement and the characterization of dense suspensions. I have a Bachelor of Science degree in Engineering from Durham University, Master of Science degree in Mechanical Engineering from the California Institute of Technology, and a Ph.D. in Mechanical Engineering from the California Institute of Technology. I was an Assistant Professor and an Associate Professor of Mechanical Engineering at the Massachusetts Institute of Technology, where I was head of the Fluid Mechanics Laboratory. I have also held positions as Visiting Professor at the Helsinki University of Technology and at the DOE Pacific Northwest Laboratory in Washington and served as Lecturer at the Worcester Polytechnic Institute. In addition, I consulted for Teleco Oil Field Services, Inc., developing MWD technology and other downhole applications.

II. SUMMARY OF OPINIONS AND FINDINGS

5. Based on the information that is currently available to Impulse, it is my opinion that there is a need for an inspection and testing of the Accused Products. While the information produced by Defendant generally supports the conclusion that the claim limitations are met by the

Accused Products, an inspection and testing is necessary to determine whether certain limitations are, in fact, met by the Accused Products.

III. DETAILS OF ANALYSIS AND FINDINGS

6. Impulse filed its complaint against Defendant for the infringement of U.S. Patent Nos. 9,765,584 (“the ’584 Patent”), 9,637,976 (“the ’976 Patent”), 11,268,337 (“the ’337 Patent”), 10,648,265 (“the ’265 Patent”), and (“the ’920 Patent”) (collectively referred to herein as “the Asserted Patents”). As part of its discovery, it is my understanding that Impulse requested an inspection (Request for Inspection No. 1) of the Accused Products, which includes the PowerGLIDE and PowerGLIDE OD, and any other oscillation tool or reasonably similar tool. It is also my understanding that Impulse requested the production of all drawings sufficient to describe the operation of the Accused Products. I understand that the scope of the drawings requested included the specifications, data sheets, diagrams, schematics, models including physical models as well as computer-aided design (“CAD”) models and drawings, configuration records, operating instructions, instructions for use, and user manuals, for all revisions.

7. Defendant has currently produced two different production sets. On November 29, 2023, Defendant produced its first set. The production set included 22 pages of drawings depicting various components of the PowerGLIDE and PowerGLIDE OD. The production set was remarkably incomplete at least because (1) it did not include revisions for earlier versions of the Accused Products; (2) it did not include drawings for all components and assemblies related to the Accused Products; and (3) it did not include specifications, data sheets, CAD models and drawings, configuration records, operating instructions, user manuals, or the like that describe the operation of the Accused Products. For example, no geometrical information was provided on the

elements of the rotor or the stator that interact with one another. These are shown in a cursory fashion absent of the actual geometry.

8. Next, on December 15, 2023, Defendant produced an additional 94 pages of drawings for various revisions depicting components of the PowerGLIDE and PowerGLIDE OD. Although this production included various revisions of drawings, the production was still incomplete at least because Defendant did not include specifications, data sheets, CAD models and drawings, configuration records, operating instructions, user manuals, or the like that describe the operation of the Accused Products. Again, details were omitted for both the stator and the rotor.

9. In Defendant's Answer to Plaintiffs' Complaint and Counterclaims, Defendant has asserted that the Accused Products do not infringe the '584 Patent because the Accused Products "do not create a fluid pressure that varies in a cyclic, polyrhythmic pattern." ECF No. 13, ¶161. Claim 1 of the '584 Patent recites "wherein rotation of the flow head with respect to the flow restrictor causes one or more of the plurality of ports of the flow head to enter into and out of alignment with one or more of the plurality of ports of the flow restrictor such that fluid pressure resulting from fluid flow through the ports of the flow head and the flow restrictor is constrained to a cyclic, polyrhythmic pattern." ECF No. 1-1 (Exhibit 1).

10. Defendant further claims that the Accused Products do not infringe the '976 Patent because the Accused Products "do not include a flow head with a plurality of ports that enter into and out of alignment with a plurality of flow ports of the flow restrictor in an irregular pattern." ECF No. 13, ¶166. Claim 10 of the '976 Patent recites "fluid flow through the ports of the flow head and the flow restrictor is varied in an irregular pattern, the irregular pattern comprising a pattern in which an orientation of the flow head at a defined position in a cycle of the rotor is different between consecutive cycles of the rotor." ECF No. 1-2 (Exhibit 2).

11. Defendant also claims, for the On Demand Tools, that the Accused Products do not infringe the '337 Patent and the '265 Patent because the Accused Products are not activatable by blocking fluid flow to a central passage. *See e.g.*, ECF No. 13, ¶¶171, 176. Claim 1 of the '337 Patent recites “the assembly being activatable when drilling fluid flow through the central passage is blocked with a projectile to divert the drilling fluid flow through the motor to thereby activate the rotor and drive the rotary component.” Claim 1 of the '265 Patent recites “activating the second friction reduction tool comprises: blocking the drilling fluid flow through the central passage with a projectile to divert the drilling fluid flow through the motor to thereby activate the rotor and drive the rotary component.” Claim 1 of the '920 Patent also recites “the receiving end permitting flow around the catch component and into the motor to thereby activate the motor when the blocking implement is retained in the rotor assembly.”

12. It is my understanding that Defendant is refusing Impulse’s Request for Inspection No. 1 to inspect and test the Accused Products because Defendant claims that “the requested inspection is unduly burdensome and the burden imposed by any such inspection outweighs its likely benefit, especially when any information that could be learned from an inspection can equally be learned from produced documents,” and that “[Defendant] will follow the ‘common practice’ and produce responsive, non-privileged, non-email ‘copies of documents or electronically stored information rather than simply permitting inspection.’”

13. While the drawings produced by Defendant generally support the conclusion that the Accused Products perform each of the above limitations, the drawings alone without an inspection and testing of the physical tools, will not show essential facts to disprove infringement of particular claims of the Asserted Patents containing the above described claim limitations. This is because the drawings alone cannot show how the Accused Products operate in the context of the

Asserted Patents. More specifically, the Asserted Patents claim a created fluid pressure that varies in a cyclic polyrhythmic pattern of fluid pressure, a fluid flow that is varied in an irregular pattern, and an activatable tool when drilling fluid flow is blocked through the central passage. This is distinguished from a limitation that can be confirmed through drawings alone, such as a limitation relating to a physical characteristic, where infringement can be proved or disproved through drawings or other documents. No documents produced to date address the time varying vibratory operating characteristics of the Accused Products. Specifically, it is not possible to make any determination regarding the regularity or irregularity, the rhythmicity or polryrhythmicity of the operation of the Accused Products from the produced documents. The drawings produced by Defendant cannot show these relevant characteristics.

14. Furthermore, although I understand that Defendant claims “any information that could be learned from an inspection can equally be learned from produced documents,” the produced documents, do not disprove the existence of the three claim limitations described above that each relate to dynamic fluid flow behavior. The drawings are a static representation of components in the Accused Products, which in this circumstance cannot be used to disprove the dynamic fluid behavior recited in these particular claims of the Asserted Patents. While the drawings only generally support the conclusion that the Accused Products perform these limitations, this would be confirmed with an inspection and testing of the Accused Products.

IV. TESTING OVERVIEW

15. I was previously retained by Impulse once before on a matter related to the '584 Patent and a competitor's downhole oscillation tool. I am familiar with tools of this type and familiar with the testing that would be required given the claim limitations described above.

16. Companies that build and provide downhole oilfield tools, in my experience, typically test their downhole tools to confirm how they will perform and whether the tool meets the company's specification prior to sending the tool to a customer to be used downhole in a drilling operation. When the tool returns, such tools are often refurbished after use downhole and tested again to confirm the tool meets the company specifications prior to then reusing that tool with a customer. Such companies, as does Impulse, often have equipment onsite to conduct such testing. One type of equipment used to conduct such testing is called a closed flow loop.

17. In order to inspect and test the Accused Products in this case, the process would not require much beyond that routine testing in a closed flow loop. The tool would need to be tested under a range of flow rates and the measurements will need to be recorded. Because the measurements will need to be recorded, a minor mechanical modification of the tool's outer housing will be required to install instrumentation, such as one or more pressure transducers and accelerometers. The flow loop will further need to allow for such testing both before and after dropping a ball to obstruct the tool's flow passage.

18. The test preparation would need to consist essentially of: (1) disassembly of the tool, (2) drilling and tapping pressure port(s) through the wall of the housing, (3) re-assembling the tool, (4) installing pressure transducer(s) and accelerometer(s), and (5) installing the tool in the flow loop with appropriate robust support. Testing will then consist of slowly increasing flow rate in the flow loop and holding the flow rate constant for a few minutes, dropping the ball, and then holding the flow rate constant again for a few minutes. Such testing will be done for 3 nominal flow rates. Flow rates, pressures, and accelerometer outputs will be recorded throughout the testing, both prior to the ball drop and after the ball drop. The further details of the preparations, instrumentation, data acquisition, documentation and the testing itself can be provided in the form

of a protocol that is exchanged and agreed upon by both parties ahead of time. The amount of time to complete such testing will not take more than one day and likely not even take a full day's time.

19. Given my experience with the testing of the competitor's downhole tool in the prior matter related to the '584 Patent and given my experiences more generally, my expectation is that all of the components of the Defendant's downhole tool can be re-used after this testing with the one exception of the outer housing, which would need to be replaced and then the tool should be able to be reused in the field.

I declare that the foregoing is true and correct under penalty of perjury under the laws of the United States of America.



Executed on this 2nd day of January 2024.

A handwritten signature in black ink, appearing to read "H Kytömaa".

Harri Kytömaa, PhD, PE